

THE  
BOSTON MEDICAL AND SURGICAL JOURNAL.

VOL. LXIX.

THURSDAY, JANUARY 21, 1864.

No. 25.

ARSENICAL PAPER HANGINGS.

[Read before the Boston Society for Medical Observation, Jan. 4th, 1864, and communicated for the Boston Medical and Surgical Journal.]

BY JOHN BACON, M.D., OF BOSTON.

For some years past, attention has been occasionally directed to the poisonous action of the green arsenical pigments used to color paper hangings, and many cases of severe and even fatal illness originating from this cause may be found recorded in recent volumes of the medical journals. It is desirable that physicians should become more fully aware of the extent to which arsenical colors are spread on the walls of dwelling houses; and of the liability to chronic poisoning from inhaling the fine dust detached from the paper and diffused through the air of apartments thus decorated. Having been called upon lately to analyze for arsenic several suspected wall papers, it occurred to me to exhibit to the Boston Society for Medical Observation some characteristic specimens, showing the various coloring matters by which different shades of green are produced; and to present, briefly, the results of my analyses of French, English and American paper hangings within a few years, looking at the subject in its chemical relations chiefly.

The arsenical pigments used to give the green tints on wall paper, are arsenite of copper, or Scheele's green, which has long been known; and aceto-arsenite of copper, called Schweinfurth green, or Emerald green. The latter is of more recent introduction, and is preferred to Scheele's green for the greater brilliancy of its color. It is a definite compound of acetate and arsenite of copper, and not a mere mixture. Arsenic is a large ingredient in both these pigments; Scheele's green containing 55 per cent. of arsenious acid, and emerald green over 58 per cent.

These colors are employed on paper hangings of all qualities, from the most costly to the cheapest. Some of the plain green wall papers are covered by a thick coating of the pigment. In others, the ground only is an arsenical color; and in some, a little green foliage alone occurs. Frequently, so much as fifty or sixty

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grains of the arsenical pigment is spread on each square foot of the paper. Emerald green mixed with whiting or other white pigments gives very delicate tints of pale green. On some papers, the ground is a thick coat of loosely adhering color, which appears faintly greenish to the eye; but analysis proves it to be rich in arsenic.

Great differences exist in the adhesion of the pigment, according to the amount of size mixed with it, and the mode of its application to the paper. The so-called glazed papers, on which a smooth and polished surface is produced by strong pressure, have usually no covering over the pigment, but the coloring matter adheres firmly and is not readily detached by friction, until by long wear the smooth surface is broken. From the glazed papers there is every gradation to those from which the slightest friction, or even a current of air, removes portions of the color. The foliage on some of the more expensive wall papers has a delicate bloom given by loosely attached emerald green.

Arsenic has been repeatedly detected in the dust of apartments hung with green-colored papers; sometimes enough pigment is present to give the dust a green tint. Various causes loosen the color from the paper and disseminate it as an impalpable powder through the air of the room. An atmosphere so contaminated must act injuriously on the health of those breathing it, although the great majority of the persons exposed may experience no immediate and obvious ill effects. It is not probable that in any ordinary circumstances the pigment while on the paper can undergo decomposition so as to set free arseniuretted hydrogen or any volatile compound of arsenic. In rooms where the walls are always dry, a thin covering of varnish, to prevent mechanical detachment of the coloring matter, would seem to afford full security; still, it is better to remove every suspicion of danger by substituting non-arsenical papers.

Paper hangings are colored by other greens besides those containing arsenic, though somewhat inferior in beauty and liveliness of tint. The very dark shades are mostly chrome greens, composed of yellow chromate of lead with Prussian blue. A bright color can be obtained from chrome green alone, but arsenical pigment is frequently mixed with it. I have analyzed recently several papers thus colored; such mixtures seem to be more commonly employed than formerly. Some tolerably dark greens contain a large proportion of arsenical pigment combined with chrome green or with Prussian blue only.

The green flock of flock papers is made from shreds of woollen cloth dyed by vegetable colors and ground to powder. This is attached to the paper by some species of size. The more costly dark-green wall papers are of this kind, and the ground upon which the flock is laid is sometimes an arsenical pigment. Particles of the dyed flock are easily detached from such papers, and may always be found in the dust of the apartment. In the better qualities of

borders for wall papers, dyed flock, free from arsenic, is generally used; but emerald green or Scheele's green is often laid over it, to form raised figures of different shades of green.

It is generally easy to ascertain the presence of arsenic in the green colors by simple chemical tests, which the physician can apply. The readiest mode is to place a slip of the suspected paper, or pigment scraped from its surface, in a watch-glass or white saucer, with a little aqua ammoniæ. This dissolves the arsenical coloring matter and forms a blue solution, owing to the presence of copper. A few drops of a solution of nitrate of silver added to the blue liquid, or a stick of lunar caustic dipped into it, will now give the characteristic lemon-yellow precipitate of arsenite of silver. The one point requiring attention is to avoid excess of ammonia, which prevents the formation of a precipitate. When the quantity of pigment is small, it is advisable to dilute the aqua ammoniæ somewhat. The blue color of the ammoniacal solution is not a sufficient evidence of the presence of arsenite of copper; because other compounds of copper, partially soluble in ammonia, as green and blue verditer, are occasionally used on paper hangings. If an additional test is desired, a little pigment scraped from the paper, and laid on a piece of burning charcoal, will give the peculiar garlic odor of arsenic. Much size or other organic matter mixed with the pigment may produce empyreumatic odors capable of concealing the garlic odor, or even resembling it. This test may be useful as a corroborative one, but is not by itself reliable.

Papers colored by chrome green are recognized by dipping them into muriatic acid, diluted by three or four measures of water. Chromate of lead is quickly dissolved, leaving Prussian blue; and the paper assumes a bright blue color. On adding a small excess of aqua ammoniæ to the acid solution from a paper colored by chrome green alone, yellow chromate of lead is precipitated. If emerald green or Scheele's green is mixed with the chrome green, the muriatic acid dissolves it, and its presence is likely to be overlooked, unless the paper is previously treated by ammonia, which attacks only the arsenical pigments. Either hydrochloric acid or aqua ammoniæ removes Scheele's green and emerald green completely from papers colored by them alone, and restores the original color of the paper.

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#### DIPHThERITIS—A NEW PLAN OF TREATMENT.

By VIRGIL W. BLANCHARD, M.D., BRIDPORT, VT.

[Communicated for the Boston Medical and Surgical Journal.]

I do not claim that I have discovered an infallible remedy for diphtheritic disease; yet I do affirm that the plan of treatment that I shall propose in the following article has proved in my hands far

more successful as a therapeutic agent in its treatment than the "tonic course" that constitutes at present the popular remedy. In fact, since I adopted the plan of treatment advised in this article, my practice in diphtheritic disease has not been attended with a single fatal result, although it has been applied to some of the most severe cases that I have met with. Previously, while I pursued the usual "tonic course" of treatment, it was attended with the frightful mortality of 75 per cent. of the number of cases treated.

To enter at this time into an exhaustive discussion of the cause, nature and treatment of diphtheritic disease would make an article too cumbersome for the pages of your JOURNAL. To those interested in my plan of treatment I would say, that a volume embodying my views in full upon the subject will soon be issued. I will content myself at this time with giving a brief outline of my theory of diphtheritic disease and my plan of treating it. I would remark, however, that the proportions and symmetry of the theory will signally suffer in consequence of the brevity that I shall be obliged to use.

The remote or pre-germinal cause of diphtheritic disease I conceive to be a morbid condition of the circulating fluids of the body. This condition is probably produced by an obscure miasmatic atmosphere. The structure that becomes essentially the seat of the disease I believe to be the sympathetic nervous system. The portions of this system that are the most directly concerned in its manifestations are, I believe, the sphenopalatine or Meckel's ganglia. These ganglia, it will be recollected, distribute nerves that govern the functions of nutrition and secretion in the mucous surface lining the nasal passages, fauces and pharynx. The procataretic or exciting cause may be a common sore throat, or any cause that is in itself an irritant to the mucous membrane lining the nasal passages and throat. Through this irritation a morbid impression additional to the one produced by the diphtheritic poison circulating with the blood, is made through their afferent nerves upon the sphenopalatine or Meckel's ganglia, the two morbid impressions concurring to light up in the mucous tissue to which they distribute their nerves an exaggerated function of nutrition and secretion, the fruit of which is the characteristic deposit. That the ganglia of the sympathetic nervous system are independent of each other in the elaboration and transmission of nervous fluid, is an established physiological fact. It is also highly probable that when a single ganglion is stimulated or excited from any cause, it has the power of diverting from the rest belonging to the same system, and especially from those adjacent, the *spiritus vitalis* or their own proper secretions; diminishing, thereby, the functions of nutrition and secretion in those tissues they supply with nerves, while the same functions are exalted in those tissues that are supplied by the nerves of the dominant ganglion.



My theory of diphtheritic disease then, is, that the sphenopalatine or Meckel's ganglia, under the influence of morbid excitement, appropriate to themselves more than their proportion of the nervous fluid of the nervous system to which they belong, by the aid of which they are enabled to carry on a morbidly exaggerated function of nutrition and secretion in the tissue to which they distribute nerves. The morbid excitation is produced by two causes—one the general, the other the local. The general one I term the remote or pre-germinal; the local one, the exciting or procataretic cause.

While this morbid excitement is present in the sphenopalatine or Meckel's ganglia, there is a diminished function of nutrition and secretion, from a lack of the normal supply of nervous fluid, in all the tissues of the body except those that are supplied by the nerves from these ganglia. This explains the diminished action in all of the important secretory organs of the body which characterizes a severe case of diphtheritic disease. To this obstruction of the secretory process may probably be ascribed the rapid deterioration of the blood that doubtless takes place in consequence of the failure of the appropriate glands to eliminate from it the poisonous qualities which it contains. The partiality of diphtheritic inflammation for the mucous surface lining the nasal passages and throat, is also explained by the fact that these tracts are more exposed than the rest within the body to the effects of irritating agencies. Thus it will be seen that the mucous surface lining the nasal passages and throat is the only one within the body that is exposed in any considerable degree to the exciting cause of the disease. A blistered or excoriated surface upon the periphery of the body becomes, from the same cause, a procataretic agent, that may involve the nervous centre from which it receives its nerves of nutrition and secretion.

In the treatment of diphtheritic disease it is my aim to cut off communication in the sympathetic nervous system between its ganglia belonging to the trunk, and those belonging to the cranium. I effect this by applying a sedative agent to the site of the superior cervical ganglia. The sedative agent must be of such degree of power as to deprive, completely or in part, the nervous centres beneath it of the power of elaborating and transmitting the *spiritus vitalis*. The sphenopalatine or Meckel's ganglia being thus in a state of partial or complete isolation, will no longer be enabled to divert, from the ganglia belonging to the trunk, their normal secretion of nervous fluid, by the aid of which they are enabled in diphtheritic disease to produce a monstrosity in nutrition and secretion. In addition to this, I apply a stimulating agent to the site of the ganglia of the trunk situated in the dorsal and lumbar regions. This is done to increase the secretion of the nervous fluid in those ganglia, which is no longer diverted from its proper channels, in order to re-establish as soon and as completely as possible the functions

of nutrition and secretion in the important secretory glands to which they distribute nerves. I also administer internally, iron in combination with nux vomica or its active principle strychnine, usually the combination known as the citrate of iron and strychnine. The iron supplies the blood with hæmotosin, which in the course of the disease is rapidly destroyed. The strychnia acts as a stimulant and tonic to the spinal cord. Such an action produced upon its tissue will probably produce the effect of counter-irritation upon that portion of its own system contained within the cranium. From such an effect, through the channels of communication that connect this portion with the sympathetic nervous system of the same region, there may be produced upon the spheno-palatine or Meckel's ganglia a similar though less decided result. I sometimes prescribe internally a mild diuretic, and always as nutritious a diet of animal food (usually broths) as the patient will accept. Diffusible stimulus, quinine, and all agents, except iron, that have a tendency to excite the cerebral functions, for obvious reasons I avoid.

My course of treatment, it will be seen, has not in view the elimination of the diphtheritic poison from the blood by the aid of neutralizing agents, but the restoration and stimulation of the functions of nutrition and secretion, from the tonic and curative action of which, it will rapidly disappear through the natural emunctories of the body. The *modus operandi*, with my plan of treatment, is as follows:—I apply ice, and in some cases a more refrigerant agent, to the site of the superior cervical ganglia of the sympathetic nervous system, or to a surface (in a child) about two inches square upon each side of the spine, about once inch below the occipital bone. At the same time I apply heat, either by the application of hot water contained in Indian rubber bags, or by napkins wrung out of hot water, to the site of the ganglia in the dorsal and lumbar regions, or to each side of the spine below the shoulders, its entire length. The applications of the refrigerating agent and of the heat *must be constant*, and the degree of each must depend upon the type of the disease. Internally, I administer the citrate of iron and strychnia, as already mentioned, sometimes combined with a mild diuretic. When the secretion of the skin is excessively deficient, I have used with advantage the nitro-muriatic acid bath.

The following case of diphtheritic disease is the last severe one that I have treated according to the above plan. I copy it *verbatim* from my record.

Bridport, Dec. 9th, 1863. Ten o'clock, P.M. Called to see a daughter of Mr. Rinaldo Kingsland. Disease, diphtheria; duration of same, 28 hours. Age of patient, 8 years. Pulse 175 per minute, very soft and irregular. Skin very hot and dry. Secretion of kidneys deficient, no urine having passed for ten hours. Respiration much oppressed and hurried; deglutition extremely difficult; the fauces and pharynx heavily loaded with a brownish deposit;

cough very croupy; nostrils discharging an amber-colored exco-riating secretion; the breath horribly foetid; the neck, in the parotid and sub-maxillary regions, badly swollen; the forehead and nasal regions pinched, the eyelids cedematous, and the cheeks puffed and shining. A physician was called in at 10 o'clock, who prescribed a tonic and diuretic, the patient rapidly growing worse under the effect. Prescribed ice for the back and neck, and napkins wrung out of hot water for each side of the spine below the shoulders; internally, two grains of citrate of iron, in combination with one twenty-fourth of a grain of strychnia, together with five drops of sweet spirits of nitre once in three hours.

Dec. 9th, 11 o'clock, P.M.—Respiration less hurried; pulse 160 per minute. Patient complains that the ice is not cold enough—that it is getting warm.

Dec. 10th, 9 o'clock, A.M.—Respiration much improved; pulse 130 per minute, and improved in tone; deglutition less difficult. Gave the patient some animal broth; same treatment. At 4 o'clock, P.M., patient was more comfortable. Pulse 120 per minute, and decidedly improved in tone; respiration free, and but little hurried; breath less foetid; discharge from the nostrils less, and not so exco-riating; skin moist; secretion of the kidneys increased. The patient takes broth freely, and remarks that the application of heat and cold to the region of the spine feels grateful. Same treatment.

Dec. 11th, 10 o'clock, A.M.—Pulse 120, improving in tone; respiration natural; breath less foetid; urine more plentiful; countenance assuming a natural expression. Same treatment.

Dec. 12th.—Patient improving. Pulse 110, quite firm; resolution of the swelling in the neck taking place, the deposit becoming detached from the mucous surface of the throat; discharge from the nostrils ceased; breath but little tainted. The patient takes solid animal food, besides the broth. Same treatment.

Dec. 13th.—Patient better; strength and appetite improving; the deposit becoming rapidly detached; the breath sweet; the secretions of the skin and kidneys normal. Same treatment.

Dec. 14th.—All the symptoms better. Patient complains that the ice and heat applied to the spinal region feel disagreeable; discontinue their application, but give the dose of my former prescription once in six hours.

Dec. 16th.—Patient sitting up, and improving rapidly.

Dec. 18th.—Patient gaining rapidly in strength.

Dec. 20th.—Patient enjoying an excellent appetite, and able to sit up most of the time. Discontinue the iron and strychnia.

Dec. 25th, 1863.

## IMPROVED METHODS OF TREATMENT IN DEFORMITIES.

By E. ANDREWS, A.M., M.D., PROFESSOR OF SURGERY IN CHICAGO MED. COLLEGE.

IN previous articles, I have figured and described several pieces of apparatus, which I use for the cure of spinal curvatures. There are numerous other appliances which are valuable adjuvants to the main treatment, among the most important of which is what the German surgeons call the "stretch-bed." This machine consists of a couch, with various appliances at the head and foot for making extension and counter-extension upon the spinal column; by means of which, like a string put under tension, the curves of the spinal column are drawn gradually straight. The first successes obtained by this invention created quite a furor in its favor in Europe; and its popularity was such as to occasion the satire, that "many seemed to imagine that nothing more was necessary to constitute an orthopedic surgeon than a stretch-bed and patients."

The extending power in this machine consists of springs or weights and pulleys, applied both at the head and foot of the bed, the weights being preferable. The upper extenders were applied to the head, in case of high curvature, and to the shoulders when the difficulty was lower down. The lower extension was applied to the bulge of the hips or to the feet. The patient was not usually required to remain continuously in the machine, but was placed in it, at intervals, from two to four times a-day; but the more time he could spend in it, without injurious loss of exercise, the more rapid was his improvement.

Although the extravagant admiration at first felt for the stretch-bed has greatly subsided, it still remains as a very valuable instrument, which no one undertaking the treatment of spinal curvatures can afford to do without. It may be specially and elaborately constructed for hospital purposes, or be extemporized out of an ordinary bedstead in private practice. For hospital purposes, the bedstead may be made of wood or iron. It should be not less than eight feet in length, by three and a half in breadth. The great length is required to make space above the head and below the feet for elastic straps and other extending appliances. There should be no head- nor foot-board, but instead of them a long roller of wood, three inches in diameter, extending from post to post, across the head and foot of the machine, and turning easily on iron axles. Above each roller should be a strong cross-bar of wood, into which iron pulleys may be set in various positions, as the surgeon may from time to time desire. The mattress should be of curled hair, rather hard, and made level and smooth. Pillows and bolsters can be varied according to the necessities of the case.

For temporary use, in private practice, a stretch-bed may be improvised out of the ordinary bedstead, by cutting openings through

the head and foot-boards, and setting in some small cast-iron or brass pulleys, such as may be found in any hardware store.

If the deformity is in the upper portion of the spine, an extension is attached to the head, by means of a firm leather band, moulded to the occiput, and provided with two branch straps, one to cross the forehead and the other to pass under the point of the chin. This must be very carefully constructed, or else it will be too irksome to be borne, but when well fitted it is borne without pain. A short band passes upward from each side of the head, and attaches to a cord which is passed over the pulley and supports a weight. The counter-extension is made by a cord and weight at the foot of the bed, in a similar manner, and may be attached to the patient either by adhesive straps applied to the legs, or by a strong waist buckled around the bulge of the hips. The weight should vary from five pounds upward, according to the ability of the patient to tolerate it. If this apparatus is properly constructed and applied, the patient will enjoy free motion both of upper and lower extremities, and can turn on his back, his face, or either side, without interfering with the extension, or rising from the bed. No effort should be made to keep the patient continually on the stretch-bed, except in cases where he is unable to sit or walk. He should resort to the bed from two to four times a-day, and remain from half an hour to an hour and a half each time. The remainder of the time he should either wear a proper supporter, or be occupied by gymnastic exercises calculated to correct the deformity. Some patients will be able to sleep in the stretch-bed after a little practice. In these cases they should by all means do so, as it adds the whole of the sleeping hours to the treatment, and very much hastens recovery. If the deformity is below the sixth dorsal vertebra, the upper extension should be applied to the armpits and chest by proper pads in the axilla, and by broad adhesive straps upon the back and chest, attached to the extending cord. When properly used, the stretch-bed exerts a very powerful influence in unfolding spinal curvatures, and the worse the deformity the more striking are its results. One of the most prominent symptoms of improvement is the surprising increase of stature which the patient exhibits as the spinal column comes out to a correct line.

*Gymnastics.*—The cure of some forms of curvature of the spine, and of all ankylosed joints, is greatly promoted, and may be entirely accomplished, by proper specific exercises, either active or passive. It is almost impossible to introduce this part of the treatment fully into general practice, on account of the amount of time required to be spent with the patient, either by the surgeon, or by a trained assistant, but parts of it will be found useful to every practitioner. The exercises are active and passive, the former being executed by the patient's own muscles, and the latter by the hand of the surgeon. Thus, for instance, if the patient

has a slight double lateral curvature, and he be directed to elevate the shoulder on the side of the concavity of the upper curve (usually the left), and depress the opposite one, and to curve the spine in the direction opposite the deformity, the practitioner at the same time guiding and assisting the motion with the hands, it will be found that the spine is momentarily restored to its normal shape. If she now repeat these motions with the same assistance many times, until fatigued, every day, the muscles which are thus trained will acquire a prodigious development, and their antagonists remaining undeveloped, they gain the mastery, and by their own superior tension ultimately correct the deformity. The bones and ligaments yield slowly to the pressure, until their shapes are perfectly restored. This is the principle of Ling's Swedish "Movement Cure," which, in a debased and spoiled form, is now hawked about the country, by sundry quacks. Some additional exercises are performed in most cases. Thus a cushioned post is prepared, and set firmly in the floor, across the top of which the patient is made to lean, and by repeated efforts of the surgeon, is made many times in succession to flex the curved spine, in the direction opposite that of the deformity.

Anchylosed joints are treated by constantly repeated exercises, both active and passive, until by degrees the fibrous bands are elongated, and mobility established. A vast number of other exercises have been devised by various orthopedists, some of which are useful and some not, but the principles involved are the same throughout.

*State of Orthopedic Surgery in Europe.*—Dr. Ling, of Stockholm, was one of the earliest lights in orthopedy. His system of treatment consisted mainly in the series of gymnastic exercises alluded to above. He gave a strong impetus to the treatment of deformities; and his institute was under the patronage of the government for forty years. Sundry rags and tatters of his ideas, under the name of the "Swedish Movement Cure," constitute the stock in trade of numerous American quacks.

Wildberger, of the Orthopedic Institute in Bamberg, mostly discards Ling's gymnastics as useless, because they are very unsuccessful in spinal diseases. This is, in a great measure, true, Ling's exercises being better adapted to diseases of the extremities than of the spine. Wildberger, on the contrary, gives most of his attention to spinal deformities, and treats them mainly by a variety of splints and supporters, which slowly and steadily force the curvatures back to a straight line. His apparatus is thorough and efficient in its action, and has the merit of allowing the patient to walk about and exercise while it is worn; but most of it is complex and clumsy in structure, being in striking contrast, in that respect, with American instruments.

Dr. Melicher, of Vienna, has an orthopedic institute, in which

he does, or at least did, a few years ago, rely almost exclusively upon Ling's gymnastics.

Dr. Berend, of Berlin, has an establishment in which he treats his patients by tenotomy, or other surgical operation, when required, and by the stretch-bed and other machinery, after which he completes the cures by gymnastics alone.

Dr. Schreiber, of the Leipsic Orthopedic Institute, treats his patients upon a stretch-bed, of which the extending force is produced by steel springs. The bed is also provided with lateral steel springs, to press in the convexities of the curved spines. His institute is but little patronized.

Dr. Kjøelstadt, of Norway, has a complex system something like the following. He first places his patient upon a stretch-bed, during certain hours. Then taking him up, he places him in a peculiar machine, in which he marches him with short steps around the room. Then laying him down, he kneads the joints and muscles with his fists, and then returns him to the stretch-bed again. He is said to possess very little adaptive power, treating all kinds of cases alike.

Dr. Roth, of London, has an institute, in which he follows Ling's method, combined with the Russian bath—that is, a bath having a series of sudden alternations between hot and cold water.

Dr. Nitzsche, of Dresden, takes complete possession of his patients, occupying their whole time with curative measures, making extensive use of gymnastics and electricity. Spinal curvatures go through the following course:—In the morning, he first washes the patient's back with cold water; then laying him on his face, he rubs him down with alcohol, and proceeds to knead and press the back in a systematic manner. He then practises the sufferer on motions to straighten the spine by the action of his own muscles. Next comes a series of exercises in which the spine is stretched between rollers, and the patient is made to swing by his hands, head, &c. &c. All this is the morning lesson. In the afternoon it is repeated, and the evening is occupied with gymnastics; after which his patients are said to sleep well. If they are not cured, it certainly is not for want of diligence.

Dr. Klepsch, of the Breslau Institute, uses stretch-beds, electricity, and a variety of instruments for club-feet and other deformities.

Dr. Knorr, of Munich, takes substantially the same course, adding to it, however, a system of gymnastics and of water cure.

Dr. Parrow, of the Orthopedic Institute, in Bonn, has a kind of chair constructed for straightening the spine. He also makes use of a great variety of apparatus, among which are pulleys, springs, and sundry handles pendant from the ceiling, upon which the patient practises swinging by one or both hands, as the case requires.

Drs. Ebener and Grossman, of Stutgard, regard instruments as



indispensable, employing stretch-beds, corsets, supporters, &c., and adding also active and passive gymnastics.

Prof. Werner, of the Gymnastic Academy, of Dessau, employs corsets, supporters, stretch-beds and baths, together with active gymnastics, but condemns the passive gymnastics as useless. In this, however, he is certainly in error, as the passive movements are very often the only ones which are possible at the commencement of the treatment.

*State of Orthopædic Surgery in the United States.*—In this country, the cure of deformities is an almost completely neglected art. A few good men are zealously cultivating it in the larger Eastern cities; but in the West, it has only just begun to receive attention. For this reason, the whole country is filled with neglected spinal curvatures, bent knees, uncured club-feet and ankylosed elbows. Many of these cases are perfectly curable, even when of many years' standing, and should be at once taken in hand. The cases of spinal deformity are especially to be commiserated, because they are usually taught to look upon their state as hopeless; whereas, a large portion of them are capable of being restored to soundness and perfect form. It is the hope of the writer that these articles may arouse the attention of our surgeons to their duty; and prevent these cases from being turned over to the maltreatment of lying, itinerant quacks.—*Chicago Medical Examiner.*

#### ON THE USE OF TANNIN IN INFLAMMATORY AFFECTIONS OF THE CONJUNCTIVA.

By G. R. SHERATON, L.R.C.P.E., M.R.C.S.

In consequence of the great discrepancy of opinion that seems to exist respecting the relative value of local and general treatment of ophthalmia, each of which has been extolled and variously estimated from time to time, I submit to the consideration of my professional brethren the result of my experience in this class of disorders, in which I shall attempt to show the vast superiority of the local over the antiphlogistic treatment, of the value of astringents generally, and of tannin in particular. But in the treatment of this, as in that of other diseases, there must necessarily be considerable modification made dependent upon its cause, for if arising from constitutional causes, that state of constitution must be remedied, whilst the local treatment is merely palliative and of secondary import; but local affections dependent upon local causes obviously require local treatment. Inflammatory affections of the "conjunctiva" usually belong to the latter class. Nowhere do we find the inflammatory process so admirably shown, or the effect of remedies so easily and accurately observed; the slightest change in the congested membrane towards resolution, or increased congestion, the most casual observer cannot fail to perceive.



How frequently have we seen the antiphlogistic treatment persevered in till the system has been drained of its blood, without producing the least beneficial effect, otherwise than relieving the co-existing symptomatic fever, with a succession of blisters only to increase the vexation and disappointment. If we look over the list of local remedies that have been successfully employed in the treatment of the ophthalmia, we will find them to be astringents, as plumb. acet., argent. nit., zinci sulph., &c., and that their beneficial results are in proportion to the amount of astringency which they possess.

Astringents are also indicated on theoretical grounds, the *modus operandi* of which upon the living tissues is to a considerable extent mechanical by contracting the fibres and capillary vessels of the part to which they are applied, by which less fluid is admitted into them. But the astringents ordinarily in use, and derived from the mineral kingdom, are inadmissible during the acute stages, in consequence of the violent irritation they produce if applied directly to the membrane, except in a very ineffectual degree of dilution.

On these grounds, then, I have been led to employ tannin, which is probably one of the most powerful astringents, while its comparative freedom from irritation renders it a safe and effectual remedy for the class of cases which I have proposed. The manner in which I employ it is in the form of solution of tannin, ʒ i.—3 ij. to aq. distil. ʒ i.

A small portion of this is dropped into the eye, which at first causes a smarting sensation, with a gush of tears, and which is succeeded by dryness and a feeling of comfort. This is to be repeated three, four, or a dozen times a day as circumstances require. The effect produced is soon made apparent; the distended capillaries seem to become unloaded of their stagnant contents, increased lachrymation and muco-purulent discharge, if present, is checked, the organ becomes more fitted to perform its office, and the dependent constitutional symptoms are mitigated and disappear. I have now treated a great number of cases most satisfactorily in this manner, without ever having had occasion to deviate from that course in the slightest degree when the result of external causes and unconnected with constitutional diathesis; though chemosis, when present, seem to retard the progress somewhat, probably in consequence of the effused fluid for a time preventing its full constrictive influence upon the capillary vessels. Since I have been thoroughly convinced of the utility of tannin as a remedial agent in this class of cases, I have modified the mode of application to suit the exigencies of the various cases, *e. g.*, by its combination with some aqueous extract of a sedative drug, as solution of morphia, belladonna, opium, &c., to relieve the distressing pain, heat and smarting that always to a greater or less extent accompany this disorder. I have also found it to be extremely useful during

the acute stage of strumous, phlyctenular corneitis, removing the vascularity more expeditely than any other remedy that I have hitherto employed, and probably tending to contraction of the resulting ulcer, and by its combination with the aqueous solution of belladonna, &c., soothes and relieves the intolerance of light; though it has usually been my practice to employ the stimulating mode of treatment as soon as the fasciculi of vessels had disappeared. I have also been careful to secure a suitable regimen, and a dose of aperient medicine when such was deemed necessary.—*Medical Times and Gazette.*

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#### SOME ACCOUNT OF PAULLINIA SORBILIS AND ITS PRODUCTS.

By T. C. ARCHER, Esq.

THE author remarked:—There is no more remarkable plant in the Order Sapindaceæ, if regarded from an economic point of view, than *Paullinia sorbilis*, although, as a plant, it is not well known to the botanical world. From its large seeds is manufactured the substance called "Guarana," which is extensively used in Brazil, Guatemala, Costa-Rica, and other parts of South America, as a nervous stimulant and restorative. The seeds, deprived of their coverings, are pounded into a paste, which, hardened in the sun, constitutes Guarana. It is used both as a remedy for various diseases, and also as a material for making a most refreshing beverage; and it adds another of those incidents so puzzling in human history of the discovery of such qualities in plants least likely to be suspected: such, for instance, as that the leaves of Tea, the seeds of Coffee and Cacao, the leaves and twigs of the various American Ilexes, and other plants, should have this wonderful restorative effect on the nervous system; and that this should not be a mere vague notion, such as attaches to thousands of other plants, but that it should really depend upon the presence of a chemical principle, the same in all, and the operation of which can be satisfactorily explained. The presence of an alkaloid, which he called Guaranine, was discovered some years ago in Guarana, by Dr. Theodore von Martius, of Erlangen, but its identity with Theine was soon established, and subsequent analyses, especially one by Dr. Stenhouse in 1856, proved that not only was the active principle of Guarana identical with Theine, but that, as far as is known, no other substance yields it so abundantly, the amount being 5·07 per cent. as against good black tea, which yields 2·13, and coffee from 0·8 to 1·00. The mode of using the Guarana is curious and interesting. It is carried in the pocket of almost every traveller, and with it the palate bone or a scale of the large fish (*Sudis gigas*), locally called "pirarucu," the rough surfaces of which form a rasp upon which the Guarana is grated, and a few grains of the powder so formed are

added to water, and drunk as a substitute for tea. The effect is very agreeable, but as there is a large portion of tannic acid also present, it is not a good thing for weak digestions. Its remarkably restorative power has given it a further great reputation as an aphrodisiac. Another species of this genus, *Paullinia cupana*, also enters into the composition of a favorite national diet-drink. Its seeds are mingled with cassava and water, and allowed to pass into a state of fermentation, bordering on the putrefactive, in which state it is the favorite drink of the Orinoco Indians.—*American Journal of Pharmacy*, from *London Pharmaceutical Journal*, Sept., 1863, from *Proceedings of the Botanical Society of Edinburgh*, in *Gardeners' Chronicle*.

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## THE BOSTON MEDICAL AND SURGICAL JOURNAL.

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BOSTON: THURSDAY, JANUARY 21, 1864.

THE MALDEN MURDER AND CORONERS.—The recent mysterious murder at Malden, with the equally inexplicable blundering at the inquest and subsequent judicial investigation, must convince everybody, we think, that there must be something at fault in the initial processes of our criminal law. In the very centre of a populous town, at noon-day, and in the most open and public building of the place, a young man is quietly murdered. Citizens had visited the bank but a few minutes before the commission of the deed, and had left young Converse at his desk, and not long afterwards a lad entering found him lying on the floor and groaning. The murderer went, as he came, unseen and unsuspected, and is still unknown. The victim survived his injuries nearly an hour, but did not recover his consciousness. Two wounds were found upon the head, one in the left temple, the other behind the right ear, and of one or both of these he died. As to the precise nature of them we are still unfortunately in doubt, for the two physicians by whom the murdered man was seen give very different descriptions of their appearance. They did agree, however, upon one point—that death had been caused by shooting.

It is not our intention to criticize the medical testimony in this case, for we hold it is never just to form an opinion of professional evidence from newspaper reports alone, and although it would seem fair to infer from the data we have, that the examination of the wounds was not conducted with sufficient care or minuteness by either gentleman, still this is no ground for the ungentlemanly abuse of them which has been lately expressed at great length in one of our leading daily papers, in a communication which exhibits sufficient ignorance of the professional points the writer attempts to throw light upon, to indicate at once the profession to which he belongs. It is to the proceedings of the inquest that we wish to call the particular attention of our readers, as they afford a fair example of the way in which justice must be thwarted in these really important preliminary investigations, unless the coroner has a scientific education. Here was a man mysteriously

murdered in broad daylight and within the hearing of many of his friends. Nothing was seen or heard of the assassin or his weapon. Two physicians give conflicting testimony as to the character of the wounds, and the jury without further examination bury the body, as if seeking to hide rather than explore.

There can be no excuse for the neglect of the coroner to have the body examined at the time by competent medical men, except *ignorance*, and even that will no longer serve should this necessary investigation be longer deferred. Such stupid blundering, however, will constantly recur, so long as non-scientific men are allowed to fill the important position of coroner; for how can such be expected to possess sufficient knowledge to discriminate between conflicting opinions, as in this case, and when to pursue, and when—often of more importance—to repress investigation; or to decide who are the competent and trustworthy medical men to call in council, or who the chemist to conduct the analysis for poison. It is as reasonable to suppose a physician competent to occupy the bench, and give judgment in matters of law. The importance of the coroner's duties are better understood in other countries, where thoroughly educated men, trained to this very calling, hold their appointments, as do the judges, from the crown, and have absolute authority in all criminal cases requiring scientific investigation. Even in London, where the "crown" has hitherto also been an object of ridicule for his notorious incompetency, the authorities have at last been aroused to a proper appreciation of his duties, and have wisely appointed such men as Dr. Lankester to perform them. In Boston we are fortunate enough to have medical coroners, but in our opinion justice would be best served by the appointment of one such officer to each large district throughout the State, to whom should be entrusted the investigation of all cases of a medico-legal character, and who should act as government expert in courts of justice. We feel sure that the profession would gladly second the permanent appointment to such office of some worthy representative of its interests, and thus free itself from the obligation of being summarily called to court, and prevent the occurrence of the disgraceful scenes which now sometimes ensue when rival scientific men meet in the witness box.

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THE LATE DR. JOHN C. DALTON.—The following sketch of the life of Dr. Dalton was communicated for the *Daily Advertiser* by one who evidently knew and loved him well:—

Dr. John C. Dalton was born on the 31st of May, 1795, in Boston. He received his early education at the public school then kept in School street, by Masters Snelling and Haskell. When thirteen years of age, he was placed under the care of Dr. Luther Stearns, of Medford, to be prepared for college, with whom he continued till 1810, when he entered Harvard College in the class with James Walker, William H. Prescott, F. W. P. Greenwood, Pliny Merrick, and others less widely known in after life, yet not unworthy of the same companionship. With these associates he passed four happy and industrious years. Here (to use his own language) he formed friendships which time only served to strengthen and confirm.

Graduating in 1814, and not having as yet decided upon a profession, he accepted from his former instructor an ushership in his academy, which he retained for an entire year. In the autumn of 1815, he

became a student of medicine in the office of Dr. Josiah Bartlett, of Charlestown, attended two regular courses of medical lectures in Boston, and a third one, during the winter of 1817-18, in Philadelphia, where he enjoyed the privilege of instruction from the master minds of such men as Casper Wistar, Philip Syng Physic, John Tyng Dorsey, Nathaniel Chapman and James Dewees; having the melancholy distinction, as a member of the class from Massachusetts, of officiating as pall-bearer, at the funeral of the last named, who died before the termination of the course.

In the spring of 1818 he accepted an invitation from Dr. Wyman, of Chelmsford, to succeed him at that place, he having been recently elected to the superintendency of the Lunatic Asylum, then just established at Charlestown.

In 1823, he married the only daughter of Deacon N. Spalding, of Chelmsford. She became the mother of eight children, five only of whom survived her. She died in the summer of 1846.

In the autumn of 1831, Dr. Dalton removed to Lowell, in consequence of the urgent invitation of Kirk Boott, Esq., and of the other gentlemen concerned in the establishment of the infant city, who knew his worth and wished to secure it for their own benefit and that of their families. For twenty-eight years he remained there in the practice of his profession, holding a place, if not the first, yet certainly second to none in public estimation. In 1859 he removed to Boston.

In a memoir furnished to his classmates, a few years ago, he says:—"My life has been emphatically a happy one; not free, of course, from the natural vicissitudes. Though repeatedly called to endure the loss of those dear to me, I enjoy communion with them in spirit, and when occasionally through my own indiscreetness or the unreliability of others, pecuniary losses have befallen me, my equanimity has been undisturbed, since the moral profit and pleasure incident to acquisition ever remains beyond the reach of chance."

After his return to Boston in 1859, he had trials to endure in the deaths, within a few years, of his three elder brothers. A more permanent source of care and anxiety existed in the care of a sister, afflicted with hopeless infirmity of mind and body. For nearly five years he watched over her, an inmate of the same house, omitting no care, no sacrifice of personal ease and pleasure, to administer to her relief. Her death occurred a few months before his own.

Having been for nearly forty years absent from his native place, he found himself, on his return, to some degree a stranger there. But every month that passed away contributed to widen the circle of his friends and to raise him higher in the opinion of the community which he had lately joined. His brothers of the profession at once joyfully admitted him to a place among their honored members, and medical trusts of dignity and importance were eagerly placed in his hands, especially those for which he was always ready, where the only reward was that of a consciousness of usefulness.

He was favored by Providence in seeing his children grow up worthy of his teachings and example. All four of his sons were at one time in the service of their country; two of them in medical, one in civil and one in the military department. Three of them continue so at this moment.

On Saturday, Jan. 2, he stepped out to purchase the "Life" of his

classmate, W. H. Prescott, for a new year's gift to another classmate. He had hardly left his door-step when his foot slipped upon a patch of ice on the sidewalk, and he fell heavily to the ground. He was assisted up, and re-entered the house, and did not immediately suffer very severe pain. But as the pain increased, he went to bed, and a physician was sent for. The pain was repressed by anodynes, but it was not till the next day that he was able to dispense with their aid. Then his mind was as clear as ever. He even regained his appetite, and it seemed as if he would in time recover from the shock. But it soon appeared that an attack of pleuro-pneumonia had set in, and his strength was not sufficient to resist this new enemy. On Friday, at 4½ o'clock, P.M., he breathed his last, surrounded by all he loved best, his sons, who were absent at posts of public duty, having had time to obey the summons which called them to his presence.

Thus passed away from earth one of the best of its children, from a life of usefulness and of good example, favored by Providence in many respects, and in none more than this, that his reflections must have brought to him the calm remembrance of a life well spent. He had always been a religious man. His faith in the immortality promised in the Gospel was unwavering. He felt more fully sensible of his imperfections than any one who knew him could be, but he felt also (to use his own words) "perfect trust in the mercy, justice and goodness of Him, whom His Son has justified us in addressing as 'Our Father in Heaven,' and whom that Son addressed as 'his Father and our Father, his God and our God.'"

Life's duties done, as sinks the clay,  
Light from its load the spirit flies,  
While Heaven and earth combined to say,  
"How blessed the righteous when he dies."

The funeral of Dr. Dalton was generally attended by the members of his profession in this city, and the body was subsequently taken to Lowell for interment. The feeling of sorrow produced in that city by his death was expressed in the following series of resolutions passed at a meeting of its citizens:—

Whereas, it has come to our knowledge that our late fellow citizen, Dr. John C. Dalton, has departed this life, and that his body is to-day to be brought to this city for interment, it is

*Resolved*, That we declare our unaffected sorrow for the loss of a tried friend, an estimable citizen, and a beloved physician.

*Resolved*, That our feelings demand some public expression of the high appreciation of his noble character, which an acquaintance of more than a quarter of a century has implanted within us.

*Resolved*, That we will assemble at the railway station to meet his remains, and unobtrusively follow them to the cemetery.

*Resolved*, That a request be made to the proper authority for the chiming of the bells, in which our late friend took so great an interest, and was so instrumental in procuring.

*Resolved*, That records of this meeting, with the resolutions, be sent to the family of the deceased, and also to the Lowell papers for publication.

We have also received the accompanying communication containing a few facts connected with his life and character, from one who only late in life became his friend:—

Not many days ago, Dr. Dalton called to see me. It was not a professional call, and so had its interest—a rare one among men of our calling—in its very friendly character. I shall not forget that call.

Our conversation was on a subject of much interest—the trials of young physicians. Dr. D. gave a very striking illustration of these trials, from his own experience. When living in Chelmsford, he was

called to a case of injury of the thigh-bone. He believed it was a fracture. Time passed, and his patient not recovering, a consultation was suggested by friends. Dr. D. of course agreed, and a distinguished surgical professor, from —, was called in, who examined the case and pronounced it a dislocation, adding that his diagnosis showed how important it was that the physician should be very cautious to avoid hasty opinions in surgical cases. Dr. Dalton also learned that this case was described in a lecture of the consulted professor, and the importance of avoiding a hasty diagnosis in such cases largely dwelt upon. Time passed. Mr. — got about, but was still lame. Some years after, he died. Our friend heard of this, went to the place of his death, and requested that the body might be disinterred. His request was granted. The *post-mortem* showed every mark of *fracture*, and thus was fully confirmed Dr. Dalton's diagnosis. Our friend immediately wrote to Prof. —, stating the result of the autopsy, and closed with saying that it was very important in such cases to avoid a "hasty diagnosis."

This case was an emphatic instance of the pursuit of Truth under Difficulties. Such a passage in the beginning of professional life, was both prophecy and promise of future character and usefulness.

The last time I saw our late friend was at a meeting of our District Medical Society. I sat next to him. He said he had prepared a paper on Uterine Polypus, and asked me to allude to such cases of this disease as had fallen under my observation. The paper alluded to was a statement of the author's observations of polypus, together with a very elaborate and valuable *résumé* of what had been written upon the subject by early and later writers.

It is rare for old men to make friends. Johnson tells us that it was a constant effort with him in his old age to keep his friendships "in repair." He certainly was successful. No one will be surprised to hear this, when it is recollected that Johnson's social proclivities were such as placed him at the very head of society, in the widest use of the term. He had, or made, leisure for the largest social enjoyment, and who has done more for literature in the presence of circumstances which would have driven any other intellect, and less moral energy, into despair?

In the hurry, the labor and fatigue of medical life, how little of time or of strength is there for social relaxation, or for the repair of friendships. That visit of our friend, extended as he feared beyond all reasonable bounds, is remembered with a freshness which the news of his sudden death has made stronger, and which will be among the few, but treasured memories of my old age.

W. C.

Dr. Dalton was appointed a member of the State Medical Commission a short time before his death, in place of the late Dr. Hayward.

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DANGER OF CAUTERIZING THE CAVITY OF THE UTERUS.—M. Nonat, in a communication to the Academy of Science, expresses his great surprise at the statement made in a recent paper by M. Courty, that he had applied the actual cautery and solid nitrate of silver to the cavity of the uterus and its cervix hundreds of times without ever meeting with any accident, whether primary or secondary. Whatever may be the case at Montpellier, this is not so at Paris, and M. Nonat is ena-



bled, both from his own practice and that of numerous distinguished surgeons, to state that such cauterization is attended with extreme danger, so that it should only be had recourse to with the greatest circumspection. Stricture or even obliteration of the uterine passage may follow it, but a still more frequent and redoubtable accident is the production of sub-acute metro-peritonitis, or peri-uterine phlegmasia, leading to suppuration and death. M. Courty considers the only contra-indication of his procedure is the presence of an inflammatory condition of the uterus; but a far more important one really is the peri-uterine phlegmasia which so often co-exists with diseases of the uterus. A long experience has taught M. Nonat the necessity of the greatest care and distrust in this matter, and has induced him to protest against these optimist conclusions of M. Courty, which are calculated to inspire those who are disposed to imitate him with a dangerous security.—*Medical Times and Gazette.*

**MORTALITY OF PROVIDENCE, R. I., FOR 1863.**—Dr. Snow, the City Registrar, reports as follows concerning the mortality of that city for the last year:—"The number of deaths in Providence in 1863 was 1,215, an increase of nearly 33 per cent. over the number in 1862. The deaths in 1863 were more than in any year since 1854; but in proportion to the population the mortality was not large. We estimate the population of the city at the present time to be at least 55,000, which would give one death in 45.27 for the year 1863."

#### VITAL STATISTICS OF BOSTON.

FOR THE WEEK ENDING SATURDAY, JANUARY 16th, 1864.

##### DEATHS.

	Males.	Females.	Total.
Deaths during the week	71	50	121
Ave. mortality of corresponding weeks for ten years, 1853-1863,	41.8	36.4	78.2
Average corrected to increased population	00	00	85.95
Death of persons above 90	0	2	2

##### Mortality from Prevailing Diseases.

Phthisis.	Croup.	Scar. Fev.	Pneumon.	Variola.	Dysentery.	Typ. Fever.	Diphtheria.
25	5	13	3	0	0	2	7

**PAMPHLETS RECEIVED.**—Medical Logic: An Introductory Lecture to the Medical Department of the University of Michigan, Session of 1863-64. By S. G. Armor, M.D., Professor of the Institutes of Medicine and Materia Medica. (From the Author.)

**DIED.**—In Enfield, Conn., Dr. Asa L. Spaulding, aged 63 years.—In London, England, Dec. 25th, 1863, Francis Boott, M.D., a native of Boston, a graduate of Harvard University, and an Honorary Member of the Mass. Medical Society.

**DEATHS IN BOSTON** for the week ending Saturday noon, Jan. 16th, 121. Males, 71—Females, 50.—Accident, 3—apoplexy, 2—disease of the bowels, 1—congestion of the brain, 1—disease of the brain, 1—inflammation of the brain, 2—bronchitis, 2—burns, 1—cancer, 1—cholera infantum, 1—consumption, 25—convulsions, 4—croup, 5—debility, 2—diarrhoea, 1—diphtheria, 7—dropsy, 2—dropsy of the brain, 4—drowned, 1—exhaustion, 1—scarlet fever, 13—typhoid fever, 2—gastritis, 1—hemorrhage, 1—disease of the heart, 4—infantile disease, 2—intemperance, 3—congestion of the lungs, 4—inflammation of the lungs, 3—marasmus, 4—old age, 3—peritonitis, 1—pleurisy, 1—rheumatism, 1—scrofula, 2—sore throat, 2—disease of the stomach, 1—unknown, 6.

Under 5 years of age, 43—between 5 and 20 years, 16—between 20 and 40 years, 26—between 40 and 60 years, 20—above 60 years, 16. Born in the United States, 83—Ireland, 32—other places, 6.